POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group number	Heliographic			Area		Total area for each day	Observatory
			Diff. in longitude	Longitude	Latitude	Spot	Group		
1937	*h. m.*		°	°	°				
Aug. 29	9 9	5539	−57.0	238.3	+12.0		170		Mt. Wilson.
		5538	−57.0	238.3	+28.0		485		
		5536	−11.0	284.3	−12.0		36		
		5537	+24.0	319.3	+32.0		48		
		5527	+27.0	322.3	+15.0		36		
		5533	+37.0	332.3	+12.0		6		
		5522	+50.0	345.3	+33.0		970		
		5525	+65.0	0.3	−13.0	194			
		5521	+70.0	5.3	+23.0		24		
		5523	+71.0	6.3	+30.5	16			
		5524	+78.0	13.3	−11.0	194			
		5534	+88.0	23.3	+14.0	242		2,421	
Aug. 30	9 9	5540	−88.0	194.1	+20.0	145			Do.
		5539	−44.0	238.1	+12.0		121		
		5538	−44.0	238.1	+29.0		582		
		5536	+3.0	285.1	−13.0		48		
		5533	+37.5	319.6	+13.0		73		
		5527	+40.0	322.1	+15.0	12			
		5522	+63.0	345.1	+33.0		291		
		5525	+79.0	1.1	−14.5		145	1,417	
Aug. 31	10 50	5543	−78.0	190.0	−13.0	12			U. S. Naval.
		5540	−75.0	193.0	+18.5		170		
		5542	−49.0	219.0	+6.0		48		
		5538	−31.0	237.0	+29.0		436		
		5539	−27.5	240.5	+11.5		48		
		5536	+19.5	287.5	−12.0		48		
		5541	+58.0	326.0	−12.5	6			
		5533	+63.0	331.0	+12.5		121		
		5522	+75.0	343.0	+33.0		582	1,471	

Mean daily area for 31 days, 2,233.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR AUGUST 1937

[Dependent alone on observations at Zurich and its station at Arosa]

[Furnished through the courtesy of Prof. W. Brunner, Eidgen. Sternwarte, Zurich, Switzerland]

August 1937	Relative numbers	August 1937	Relative numbers	August 1937	Realtive numbers
1		11	140	21	80
2	*a* 180	12	*Mc* 144	22	103
3	*Mc* 207	13	114	23	*Eac* 139
4	*d* 197	14	*ab* 124	24	*Mca* 150
5	*ab* 205	15	128	25	*ab* 137
6	176	16	119	26	144
7	135	17		27	*d* 143
8	*d* 154	18	*dd* 82	28	130
9	173	19	*Ec* 88	29	110
10	*a* 183	20	*Ec* 96	30	*d* 109
				31	128

Mean, 29 days=138.6.

a=Passage of an average sized group through the central meridian.
b=Passage of a large group or spot through the central meridian.
c=New formation of a group developing into a middle sized or large center of activity; *E:* on the eastern part of the sun's disk, *W:* on the western part, *M:* in the central circle zone.
d=Entrance of a large or average sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE, in Charge]

By L. P. HARRISON

Mean free-air data based on airplane weather observations during the month of August 1937 are given in tables 1 to 3. A description of the methods by which the various monthly means and normals therein are computed may be found in this section of the MONTHLY WEATHER REVIEW for January and March 1937.

It will be noted that many of the "normals" are based on only 3 years of observations. Conclusions based on departures from such short-period "normals" must be used with caution.

The mean surface temperatures for August (see chart I) were above normal over practically the entire country. The largest positive departures at the surface were largely concentrated in the north-central part of the country, with values ranging from about +2° C. to +5.6° C. Elsewhere the positive departures generally averaged from +1° C. to +3° C. Slight negative departures occurred over small areas in the extreme northwest, the central California coast, northern Florida, and southeastern Georgia.

The mean free-air temperatures for the month up to 5 kilometers above sea level (table 1) were generally above normal, except over the extreme northwestern and the southeastern sectors of the country where they were largely below the normal by slight amounts The greatest positive departures prevailed over the north-central portion in harmony with the conditions observed at the surface; however, the (available) values here ranged only from +1° C. to +3.7° C. in the free air. The northeast coastal area was characterized by similar departures with a slightly lower extreme. The departures of positive sign were elsewhere of inconsequential magnitude. It is of interest to note the pronounced horizontal gradient of temperature over the Western Plateau Region at 2 kilometers. This is best exemplified by the data for Salt Lake City and Cheyenne which had a monthly mean temperature of 22.7° C. and 17.9° C., respectively.

The mean free-air relative humidities and specific humidities are given in table 2. The distribution of the positive and negative departures of relative humidity from the normals in the eastern part of the country during this month was not very regular over extensive areas (i. e. spotted). Near the northeastern coastal region slight to moderate positive departures (2 to 13 percent) were prevalent. The middle-Atlantic coastal area had practically normal humidities up to 4 kilometers. The data in the table for Lakehurst, N. J., indicates a departure of −21 percent at 5 kilometers. This subnormal value, presumably resulting from fewness of observations, is open to some doubt especially since the data for Norfolk, Va., portrayed departures decreasing from +9 percent at the surface to +3 percent at 2 and 2.5 kilometers then increasing to +12 percent at 5 kilometers. The region immediately south of the Great Lakes was generally characterized by slight positive departures at low elevations and moderate negative departures at the high elevations (−10 to −14 percent at 5 kilometers). Elsewhere in the east slight to low moderate departures of either sign occurred over various localities. On the other hand, the western half of the country judging from available data largely had humidities which were below normal by slight to moderate extents, except in the extreme northwest. There, small positive departures prevailed. Humidity conditions in the Dakotas were apparently similar to those occurring in connection with the western regime of deficient values.

Table 3 shows the monthly mean free-air barometric pressures and equivalent potential temperatures. The